

What is claimed is:

1. A collimator device for a nuclear imaging camera, comprising:
a grid of collimation square holes formed by a plurality of sheets
arranged in a grid pattern, each of said sheets having evenly spaced slots into
5 which other sheets are inserted;
optically reflecting material coating at least a portion of the surfaces of
said sheets forming said grid of said collimation square holes; and
pixellated scintillators individually located in each of said collimation
square holes.
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2. The device of claim 1, wherein said optically reflecting material
maximizes light intensity of pixellated scintillators events.
3. The device of claim 1, wherein said pixellated scintillators are
15 scintillation crystals.
4. The device of claim 1, wherein said pixellated scintillators have a
square-shaped configuration.
- 20 5. The device of claim 1, wherein said plurality of sheets are formed of
a material having a high density.
6. The device of claim 5, wherein the high density material is tungsten.
- 25 7. The device of claim 5, wherein the high density material is lead.
8. The device of claim 1, wherein the reflecting material is TiO_2 .
9. The device of claim 1, wherein the reflecting material is MgO .

10. A scintigraphic device, comprising:
a collimator device including
a grid of collimation square holes formed by a plurality of sheets
5 arranged in a grid pattern, each of said sheets having evenly spaced slots into
which other sheets are inserted;
optically reflecting material coating at least a portion of the
surfaces of said sheets forming said grid of said collimation square holes; and
pixellated scintillators individually located in each of said
10 collimation square holes; and
a detector coupled to said pixellated scintillators and operable to detect
radiation emanating from an object and interacting with said scintillators after
passing through said collimator device.
- 15 11. The device of claim 10, wherein said optically reflecting material
maximizes light intensity of pixellated scintillators events.
12. The device of claim 10, wherein said pixellated scintillators are
scintillation crystals.
- 20 13. The device of claim 10, wherein said pixellated scintillators have a
square-shaped configuration.
14. The device of claim 10, wherein said plurality of sheets are formed
25 of a material having a high density.
15. The device of claim 14, wherein the high density material is
tungsten.
- 30 16. The device of claim 14, wherein the high density material is lead.

17. The device of claim 10, wherein the reflecting material is TiO_2 .

18. The device of claim 10, wherein the reflecting material is MgO .

5 19. A method of forming a collimator device, comprising:
forming a plurality of evenly spaced slots across a longitudinal direction
of a plurality of sheets;
arranging said plurality of sheets in a grid pattern by inserting a sheet
into each of said slots and thereby forming a grid of collimation square holes;
10 coating at least a portion of the surfaces of said sheets forming said grid
of said collimation square holes with an optically reflecting material; and
inserting pixellated scintillators into each of said collimation square
holes.

15 20. The method of claim 19, wherein said optically reflecting material
maximizes light intensity of pixellated scintillators events.

20 21. The method of claim 19, wherein said pixellated scintillators are
scintillation crystals.

22. The method of claim 19, wherein said pixellated scintillators have a
square-shaped configuration.

25 23. The method of claim 19, wherein said plurality of sheets are formed
of a material having a high density.

24. The method of claim 23, wherein the high density material is
tungsten.

30 25. The method of claim 23, wherein the high density material is lead.

26. The method of claim 19, wherein the reflecting material is TiO_2 .

27. The method of claim 19, wherein the reflecting material is MgO .

5 28. A building block for forming a collimator device of a nuclear
medical imaging camera, comprising an elongated sheet of metallic material
having a thickness suitable for functioning as septa of said collimation device,
and having a plurality of evenly spaced slots into which other elongated
sheets are inserted in order to form a grid pattern of collimation holes into
10 which pixellated scintillators are placed.